

Claims***What is claimed is:***

1. A method of inhibiting attachment of substrate-dependent cells to a
5 substrate comprising applying an adherent N,O-carboxymethylchitosan coating to said substrate such that attachment of substrate-dependent cells is inhibited.
2. The method of claim 1, wherein the substrate is selected from the group consisting of mammalian cells and tissue, non-mammalian cells and tissue, medical
10 devices, fermentation units, bioreactors, and solid supports.
3. The method of claim 2, wherein the mammalian tissue is soft tissue.
4. The method of claim 2, wherein the mammalian tissue is hard tissue.
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5. The method of claim 2, wherein said medical device is selected from the group of implantable and non-implantable devices consisting of stents, catheters, contact lenses, breast implants, pacemakers and shunts.
- 20 6. The method of claim 1, wherein the substrate-dependent cells are selected from the group consisting of fibroblasts, macrophages, epithelial cells, somatic cells and endothelial cells.
- 25 7. The method of claim 1, wherein said adherent N,O-carboxymethylchitosan is an adherent solution, hydrogel, paste, particle, bead, pellet, rehydratable film, or sponge.
8. The method of claim 1, wherein said adherent N,O-carboxymethylchitosan is covalently cross-linked.
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9. The method of claim 1, wherein said adherent N,O-carboxymethylchitosan is ionically cross-linked.
- 35 10. A method of inhibiting attachment of a protein to a substrate comprising applying an adherent N,O-carboxymethylchitosan coating to said substrate such that attachment of said protein is inhibited.

11. The method of claim 10, wherein the substrate is selected from the group consisting of mammalian cells and tissue, non-mammalian cells and tissue, medical devices, fermentation units, bioreactors, and solid supports.
- 5 12. The method of claim 11, wherein the mammalian tissue is soft tissue.
13. The method of claim 11, wherein the mammalian tissue is hard tissue.
- 10 14. The method of claim 11, wherein said medical device is selected from the group consisting of stents, catheters, contact lenses, breast implants, pacemakers and shunts.
- 15 15. The method of claim 10, wherein said adherent N,O-carboxymethylchitosan is an adherent solution, hydrogel, paste, particle, bead, pellet, rehydratable film, or sponge.
16. The method of claim 10, wherein said adherent N,O-carboxymethylchitosan is covalently cross-linked.
- 20 17. The method of claim 10, wherein said adherent N,O-carboxymethylchitosan is ionically cross-linked.
- 25 18. A method of obtaining a population of cells comprising:
- a) supplementing culture media with adherent N,O-carboxymethylchitosan;
 - b) growing said population of cells in the supplemented media;
 - and
 - c) allowing said cells to grow or differentiate,
- 30 wherein proliferation of substrate-dependent cells within said population is inhibited.
19. The method of claim 18, wherein said adherent N,O-carboxymethylchitosan is a solution, hydrogel or paste.
- 35 20. The method of claim 18, wherein said adherent N,O-carboxymethylchitosan hydrogel is covalently cross-linked.

21. The method of claim 18, wherein said adherent N,O-carboxymethylchitosan hydrogel is ionically cross-linked.

5 22. The method of claim 18, wherein substrate-dependent cell attachment within said population is inhibited.

23. A method of obtaining a population of cells suitable for use in protein or antibody production comprising:

- 10 a) supplementing culture media with adherent N,O-carboxymethylchitosan; and,
b) growing said population of cells in the supplemented media, wherein intercellular attachment within said population is inhibited and production of said protein or antibody is enhanced.

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24. The method of claim 23, wherein said adherent N,O-carboxymethylchitosan is a solution, hydrogel or paste.

25 25. The method of claim 23, wherein said adherent N,O-carboxymethylchitosan hydrogel is covalently cross-linked.

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26 The method of claim 23, wherein said adherent N,O-carboxymethylchitosan hydrogel is ionically cross-linked.

25 27. The method of claim 23, wherein substrate-dependent cell attachment within said population is inhibited.

28. A method of inhibiting attachment of an inflammatory cell or protein to a medical device comprising coating said device with adherent N,O-carboxymethylchitosan such that inflammatory cell attachment is inhibited.

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29. The method of claim 28, wherein said adherent N,O-carboxymethylchitosan is an adherent solution, hydrogel, paste, rehydratable film, or sponge.

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30. The method of claim 28, wherein said adherent N,O-carboxymethylchitosan is covalently cross-linked.

31. The method of claim 28, wherein said adherent N,O-carboxymethylchitosan is ionically cross-linked.

5 32. The method of claim 28, wherein said medical device is selected from the group consisting of stents, catheters, pacemakers, breast implants, contact lenses and shunts.

33. The method of claim 28, wherein said inflammatory cell is selected from
10 the group consisting of fibroblasts, macrophages, monocytes and lymphocytes.

34. A method of inhibiting substrate-dependent cell attachment in a cell-based product in contact with a solid support comprising contacting said cell based product with a solid support having an adherent NOCC coating.
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35. The method of claim 34, wherein said adherent N,O-carboxymethylchitosan is an adherent solution, hydrogel, paste, rehydratable film, or sponge.

20 36. The method of claim 34, wherein said adherent N,O-carboxymethylchitosan is covalently cross-linked.

37. The method of claim 34, wherein said adherent N,O-carboxymethylchitosan is ionically cross-linked.
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38. The method of claim 34, wherein said adherent N,O-carboxymethylchitosan is coated on said solid support.

39. The method of claim 34, wherein said cell-based product is a cell culture.
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40. The method of claim 34, wherein said cell-based product is a biological sample.

41. The method of claim 40, wherein said biological sample is blood.
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42. The method of claim 40, wherein said biological sample is plasma.